

# Claims

What is claimed is a:

1. Base transceiver station for a radio communication system, the base transceiver station having a transmitter unit, a receiver unit and a transmit path between the transmitter unit and an antenna, wherein the receiver unit determines output data from received signals and the transmitter unit converts input data into transmitted signals and pre-distorts the transmitted signals using at least one compensation value, and wherein  
the base transceiver station further comprises:  
a branching unit for transferring at least a portion of a transmitted signal from the transmit path to the receiver unit; and  
a processing unit which is adapted to receive a representation of the input data and the output data,  
the processing unit being further adapted to compare the input data to the output data, to determine a first compensation value for the pre-distortion according to the comparison, and to update the compensation value of the transmitter unit with the first compensation value.
2. Base transceiver station according to claim 1, wherein the branching unit comprises a converter for converting the frequency of the transferred signal to the input range of the receiver unit.
3. Base transceiver station according to claim 2, wherein the converter comprises a mixer and an oscillator and the mixer mixes a signal generated by the oscillator and the transferred signals.

4. Base transceiver station according to claim 1, wherein the branching unit comprises an element for delaying the transferred signal.

5. Base transceiver station according to claim 2, wherein the branching unit comprises an element for delaying the transferred signal.

6. Base transceiver station according to claim 1, wherein the branching unit comprises a connection between the transmit path and a receiver path connecting an antenna and the receiver unit.

7. Base transceiver station according to claim 2, wherein the branching unit comprises a connection between the transmit path and a receive path connecting an antenna and the receiver unit.

8. Base transceiver station according to claim 1, wherein the transmit path and a receive path connecting an antenna and the receiver unit have a common section and the branching unit feeds the transferred signal into the common section.

9. Base transceiver station according to claim 2, wherein the transmit path and a receive path connecting an antenna and the receiver unit have a common section and the branching unit feeds the transferred signal into the common section.

10. Base transceiver station according to claim 1, wherein the branching unit is connected to the transmit path near an antenna reference point.

11. Base transceiver station according to claim 1, wherein the branching unit is connected selectively to the transmit path and a receive path with a device selected from a group comprising a coupler and a switch.

5 12. Base transceiver station according to claim 1, wherein a combining and distribution unit comprises the branching unit .

13. Base transceiver station according to claim 1, wherein the content of a transmitted signal corresponds to a complex signal vector.

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14. Base transceiver station according to claim 13, wherein the transmitted signals are EDGE signals or UMTS signals.

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15. Base transceiver station according to claim 1, wherein the processing unit determines further compensation values for different frequencies of transmitted signals.

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16. Method for the correction of signal distortions in a base transceiver station provided with a transmitter unit and a receiver unit , wherein transmitted signals are sent from the transmitter unit over a transmit path to an antenna , the method comprising the steps of:  
determining first signals for transmission from input data and sending them into the transmit path;  
branching off at least a portion of the first transmitted signals from the transmit path;  
25 transferring the branched off signals to the receiver unit,;  
calculating output data from the signals transferred to the receiver unit ;  
comparing the input data and the output data;  
determining at least one first compensation value according to the comparison;and  
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adjusting further transmitted signals according to the first compensation value.

17. Method according to claim 16, wherein the first transmitted signals are determined using a preceding compensation value and the preceding compensation value is adjusted by the first compensation value.
18. Method according to claim 16, wherein the frequency of the transferred signal is converted to the input range of the receiver unit.
19. Method according to claim 17, wherein the frequency of the transferred signal is converted to the input range of the receiver unit.
20. Method according to claim 16, wherein the signal is transferred to the receiver unit with a delay.
21. Method according to claim 17, wherein the signal is transferred to the receiver unit (RU) with a delay.
22. Method according to claim 16, wherein the content of a transmitted signal corresponds to a complex signal vector.
23. Method according to claim 17, wherein the content of a transmitted signal corresponds to a complex signal vector.
24. Method according to claim 22, wherein the transmitted signals are EDGE signals or UMTS signals, selectively.
25. Method according to claim 16, wherein further compensation values are determined for different frequencies of transmitted signals.

26. Method according to claim 16, wherein the method is performed during a low traffic period.

5 27. An article of manufacture comprising a program unit on a data carrier for use with a processing unit of a base transceiver station, disposed to transmit and receive signals, selectively, the program unit comprising code for operating the processing unit to perform the steps of:  
 10 receiving input data corresponding to transmitted signals;  
 receiving output data corresponding to received signals;  
 comparing the input data and the output data;  
 determining a first compensation value according to the comparison and  
 transferring the first compensation value to a transmitter unit of the base transceiver station.

15 28. Article according to claim 27, wherein the program unit is loadable into the processing unit and executable in the base transceiver station .